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10/642,477	08/15/2003	Masakazu Kawai	20911-08172	3831

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EXAMINER
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HOEKSTRA, JEFFREY GERBEN

ART UNIT	PAPER NUMBER
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3736

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10/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/642,477	Applicant(s) KAWAI ET AL.	
	Examiner Jeffrey G. Hoekstra	Art Unit 3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2007.  
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.  
 4a) Of the above claim(s) 9-12 is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-8 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 15 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/21/2007 &amp; 09/19/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/21/2007 has been entered.

### ***Notice of Amendment***

2. In response to the amendment filed on 08/21/2007, amended claims 1, 3, and 8 is/are acknowledged. The following new and reiterated grounds of rejection are set forth:

### ***Information Disclosure Statement***

3. The information disclosure statement(s) (IDS) submitted on 08/21/2007 and 09/19/2007 is/are acknowledged. The submission is in compliance with the provisions of 37 CFR 1.97 and 1.98. Accordingly, the examiner is considering the information disclosure statement(s).

### ***Claim Objections***

4. Claims 1 and 8 are objected to because of the following informalities: the positive recitations of "from associated sensors" in lines 7, 9-10, and 13 appear to lack antecedent basis, appear to duplicate the structure of the "associated sensors", and/or appear to render the claims indefinite. As claimed it is unclear if the various instances

of the "associated sensors" are claiming distinct "associated sensors". Appropriate correction is required.

5. Claims 1 and 8 are objected to because of the following informalities: the positive recitation of "the center of gravity" in line 8 appears to lack antecedent basis and may render the claim indefinite. The Examiner notes Applicant may have intended to positively recite "a center of gravity". Appropriate correction is required.

6. Claims 1 and 8 are objected to because of the following informalities: the positive recitation of "the whole body" in line 8 appears to lack antecedent basis and may render the claim indefinite. The Examiner notes Applicant may have intended to positively recite "a whole body". Appropriate correction is required.

7. Claims 1 and 8 are objected to because of the following informalities: the positive recitation of "the vertical component of acceleration" in line 11 appears to lack antecedent basis and may render the claim indefinite. The Examiner notes Applicant may have intended to positively recite "a vertical component of acceleration". Appropriate correction is required.

8. Claims 1 and 8 are objected to because of the following informalities: the positive recitation of "the vertical component of an actual ground reaction force" in line 14 appears to lack antecedent basis and may render the claim indefinite. The Examiner notes Applicant may have intended to positively recite "a vertical component of an actual ground reaction force". Appropriate correction is required.

9. Claims 1 and 8 are objected to because of the following informalities: the positive recitation of "module, based on" in line 15 appears to contain typographical

and/or grammatical errors. The Examiner notes Applicant may have intended to positively recite "module based on". Appropriate correction is required.

10. Claims 1 and 8 are objected to because of the following informalities: the positive recitation of "force, based on" in line 23 appears to contain typographical and/or grammatical errors. The Examiner notes Applicant may have intended to positively recite "force based on". Appropriate correction is required.

11. Claim 2 is objected to because of the following informalities: the positive recitation of "measured on the body" in lines 3-4 appears to render the claim indefinite. The Examiner notes Applicant may have intended to positively recite "measured by the body center of gravity acceleration computing module". Appropriate correction is required.

12. Claims 2, 4, and 6 are objected to because of the following informalities: the positive recitation of "the body" appears to lack antecedent basis, duplicate the structure of "the whole body", and/or may render the claim indefinite. The Examiner notes Applicant may have intended to positively recite "the whole body". Appropriate correction is required.

13. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The positive recitation in claim 4 in lines 2-3 of "the point (of application of the ground reaction force) is obtained based additionally on a location of the center of gravity of the body" appears to duplicate

and/or is not distinguished from the positive recitation in claim 1 in lines 22-24 "obtaining an actual point of application of the ground reaction force... based on the position of the center of gravity of the whole body".

14. Claim 5 is objected to because of the following informalities: the positive recitation of "a sensor" in line 3 appears to duplicate the structure of the "associated sensors" and appears to render the claims indefinite. Appropriate correction is required.

15. Claim 6 is objected to because of the following informalities: the positive recitation of "the whole body, is" in line 2 appears to contain typographical and/or grammatical errors. The Examiner notes Applicant may have intended to positively recite "the whole body is". Appropriate correction is required.

16. Claim 6 is objected to because of the following informalities: the positive recitation of "measured at the body" in line 5 appears to render the claim indefinite. The Examiner notes Applicant may have intended to positively recite "measured by the body center of gravity acceleration computing module". Appropriate correction is required.

17. Claims 7 is objected to because of the following informalities: the positive recitations of "the knee joint" in lines 3 and 10, "the shin" in line 5, "the hip joint" in line 9, and "the thigh" in line 10 appear to lack antecedent basis and may render the claim indefinite. Appropriate correction is required.

18. Claim 7 is objected to because of the following informalities: the positive recitation of "of the shin, are obtained" in lines 3-4 appears to contain typographical and/or grammatical errors. The Examiner notes Applicant may have intended to positively recite "of the shin are obtained". Appropriate correction is required.

19. Claim 7 is objected to because of the following informalities: the positive recitation of "of the thigh, are obtained" in line 9 appears to contain typographical and/or grammatical errors. The Examiner notes Applicant may have intended to positively recite "of the thigh are obtained". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

20. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

21. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

22. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The cooperative structural relationship between the processor, the modules, and the sensors is omitted amounting to a gap between the necessary structural connections.

23. As claimed the cooperative structural relationship between the processor and the modules are omitted. It is indefinite if the modules are stored on a computer readable medium and executed as software and/or programs within the processor, and/or if the modules are structural entities such as analog circuits in electrical and operable data communication with the processor.

24. As claimed the cooperative structural relationship between the modules and the associated sensors are omitted. It is indefinite how the modules use data from the associated sensors when there appears to be no operable connection between the modules and the sensors other than that they are "associated".

25. As claimed the scope of the claim is indeterminate with regards to the cooperative structural relationship between the sensors. It is indefinite how many sensors are being used.

26. Moreover for example, in claim 3, it is indefinite how a "foot switch" can be included in the "leg-motion determining module" when the module may apparently be software.

***Allowable Subject Matter***

27. Claims 1-8 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

28. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach and/or fairly suggest a method executed in a processor for obtaining in real times torques to be applied to joints of a leg of a biped walking system, comprising *inter alia* the steps of: using sensors and associated computing modules in determining each of the following: to determine which leg or legs are in contact with the ground, obtain an attitude of a leg, to obtain a position of a center of gravity, to obtain a vertical component of acceleration of the center of gravity, to obtain a vertical component of an actual ground reaction force, to obtain an actual point of application of the ground reaction force, to obtain moments acting around the joints,



and to obtain torques to be applied to the joints, wherein the step of obtaining an actual point of application of the ground reaction force is based upon when the legs are going up or down stairs or going uphill or downhill, and wherein the step of obtaining moments acting around the joints does not use the horizontal components of the forces acting on the joints of the legs and a term of acceleration except the term of the acceleration of gravity.

### ***Response to Arguments***

29. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey G. Hoekstra whose telephone number is (571)272-7232. The examiner can normally be reached on Monday through Friday, 8:00 a.m. to 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max F. Hindenburg can be reached on (571)272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3736

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/J.H./

Jeff Hoekstra  
Examiner, Art Unit 3736



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